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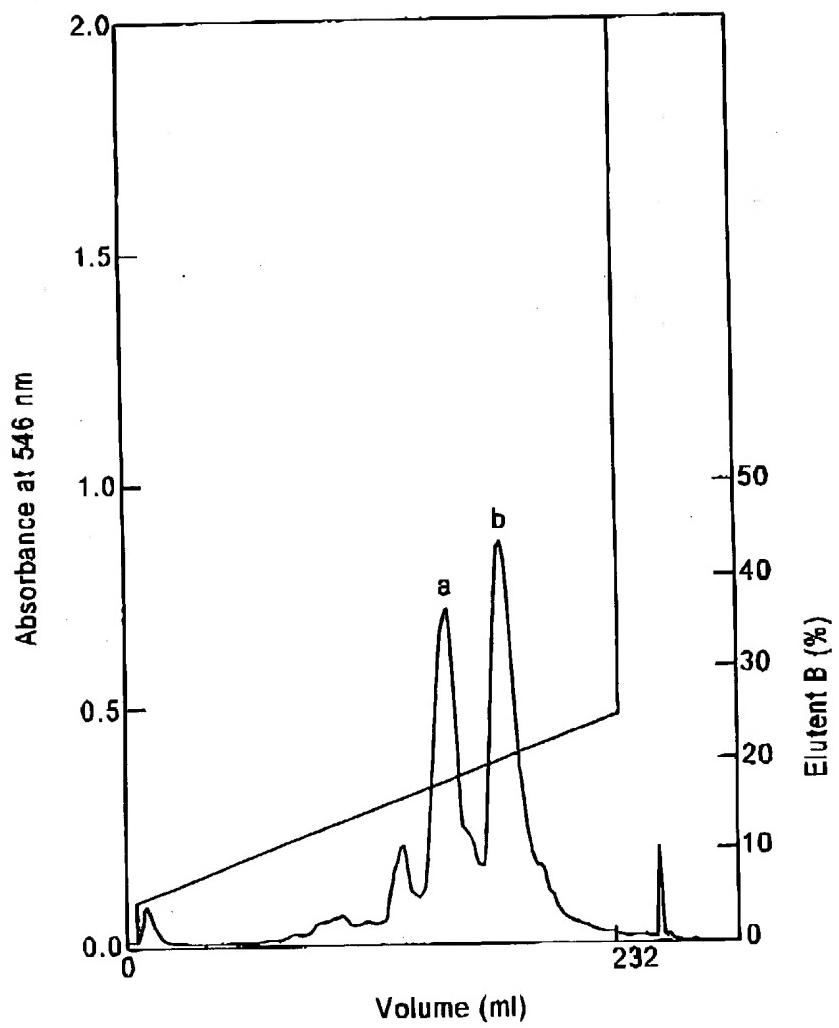
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RBS | ->  $\alpha$ -globin  
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CCGCACCTCG ATCTGAGCCA CGGCTCTGCC CAGGTTAAGG GCCACGGCAA GAAGGTGCC  
GACGCGCTGA CCAACGCCGT GGCGCACGTG GACGACATGC CCAACGCCGT GTCCGCCCTG  
AGCGACCTGC ACGCGCACAA GCTTCGGGTG GACCCGGTCA ACTTCAAGCT CCTAAGCCAC  
TGCCCTGCTGG TGACCCCTGGC CGCCCACCTC CCCGCGGAGT TCACCCCTGC GGTGCACGCC  
TCCCTGGACA AGTTCCCTGGC TTCTGTGAGC ACCGTGCTGA CCTCCAAATA CCGTTAAACT  
RBS | ->  $\beta$ -globin  
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GTGAGGCCCT GGGCAGGCTG CTGGTGGTCT ACCCTTGAC CCAGAGGTTG TTTGAGTCCT  
TTGGGGATCT GTCCACTCCT GATGCTGTTA TGGGCAACCC TAAGGTGAAG GCTCATGGCA  
AGAAAGTGCT CGGTGCCCTT AGTGATGCC TGGCTCACCT GGACAACCTC AAGGGCACCT  
TTGCCACACT GAGTGAGCTG CACTGTGACA AGCTGCACGT GGATCCTGAG AACCTCAGGC  
 $\beta$ 108Asn->Gln  
TCCTGGACA AGTACTGGTC TGTGTGCTGG CCCATCACTT TGGCAAAGAA TTCACCCAC  
CAGTGCAGGC TGCCTATCAG AAAGTGGTGG CTGGTGTGGC TAATGCCCTG GCCCACAAGT  
->| SphI rrb(58,T1,T2)  
ATCACTAACG ATGCATCTGT TTTGGCGGAT GAGAGAAGAT TTTCAGCCTG ATACAGATTA  
NsiI

FIG. 1A

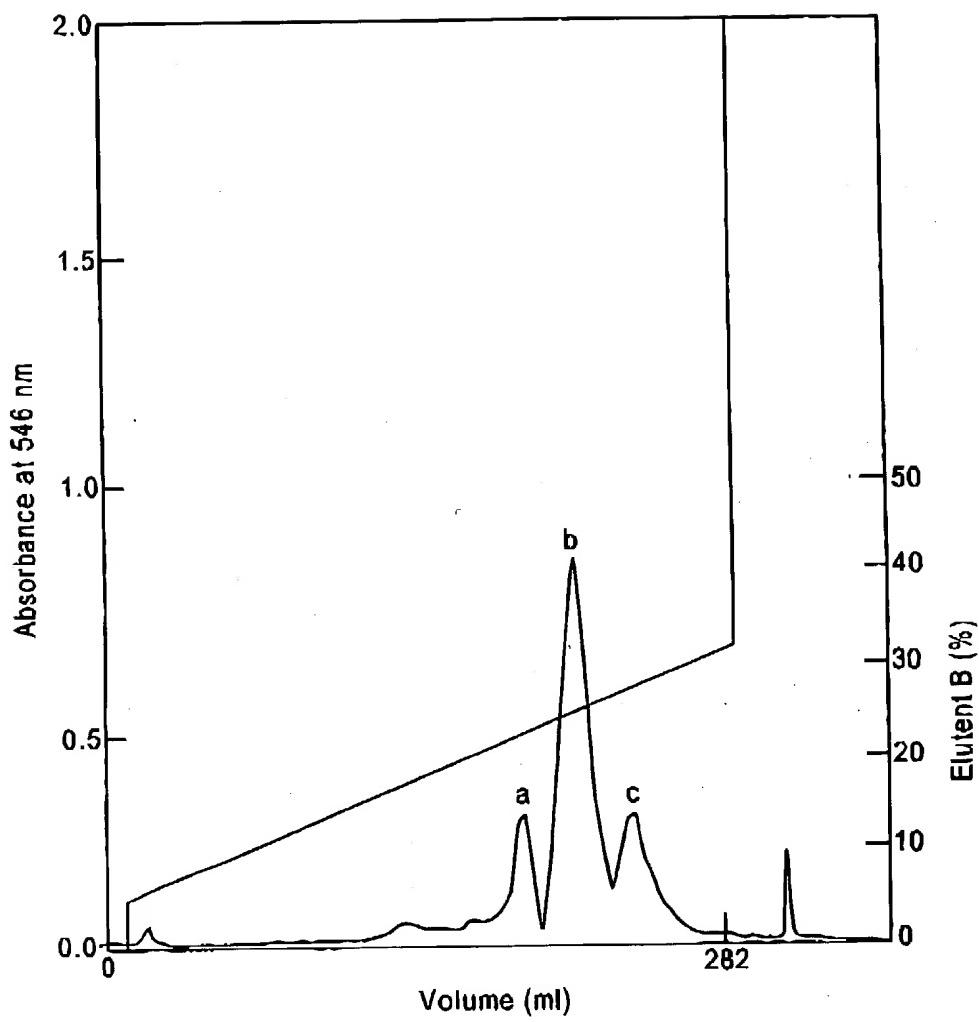
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EcoRI SacI KpnISmai  
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RBS | ->  $\alpha$ -globin  
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CCTGCCGACA AGACCAACGT CAAGGCCGCC TGGGGTAAGG TCGGGCGCA CGCTGGCGAG  
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CCGCACCTCG ATCTGAGCCA CGGCTCTGCC CAGGTTAAGG GCCACGGCAA GAAGGTGGCC  
GACGCCGCTGA CCAACGCCGT GGCGCACGTG GACGACATGC CCAACGCCGT GTCCGCCCTG  
AGCGACCTGC ACACCGCACAA GCTTCGGGTG GACCCGGTCA ACTCAAGCT CCTAACCCAC  
TGCCTGCTGG TGACCCCTGGC CGCCCACCTC CCCGCCGAGT TCACCCCTGC GGTGCACGCC  
->|  
TCCCTGGACA AGTTCCCTGGC TTCTGTGAGC ACCGTGCTGA CCTCCAAATA CCGTTAAACT  
RBS | ->  $\beta$ -globin  
AGAGGGTATT AATAATGTAT CGCTTAAATA AGGAGGAATA ACATATGGTG CACCTGACTC  
CTGAGGAGAA GTCTGCCGT ACTGCCCTGT GGGGCAAGGT AACGTGGAT AAAGTTGGTG  
GTGAGGCCCT GGGCAGGCTG CTGGTGGTCT ACCCTTGGAC CCAGAGGTTG TTTGAGTCCT  
TTGGGATCT GTCCACTCCT GATGCTGTTA TGGGCAACCC TAAGGTGAAG GCTCATGGCA  
AGAAAGTGCT CGGTGCCCTT AGTGATGGCC TGGCTCACCT GGACAAACCTC AAGGGCACCT  
TTGCCACACT GAGTGAGCTG CACTGTGACA AGCTGCACGT GGATCCTGAG AACTTCAGGT  
 $\beta$ 105Leu->Trp  
GGCTAGGCAA CGTGTGCTGG CCCATCACTT TGGCAAAGAA TTCACCCCCAC  
CAGTGCAGGC TGCCTATCAG AAAGTGGTGG CTGGTGTGGC TAATGCCCTG GCCCACAAGT  
->| SphI  $\pi$ B(5S, T1, T2)  
ATCACTAAGC ATGCATCTGT TTTGGCGGAT GAGAGAAGAT TTTCAGCCTG ATACAGATTA  
NsiI

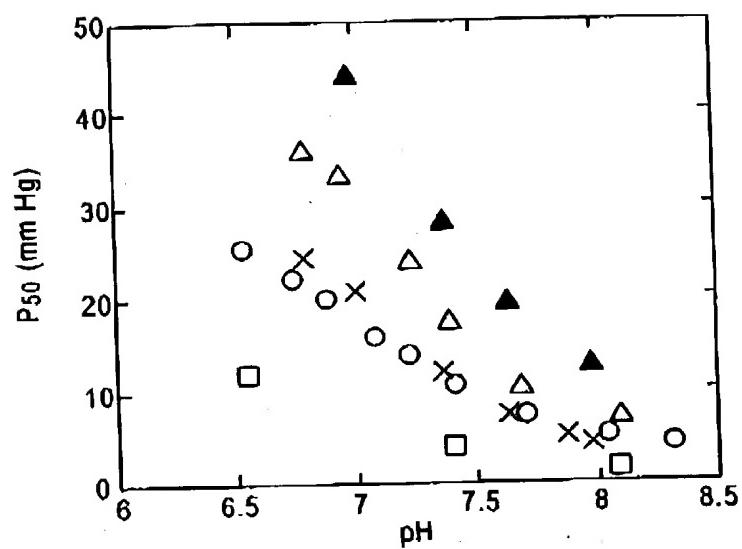
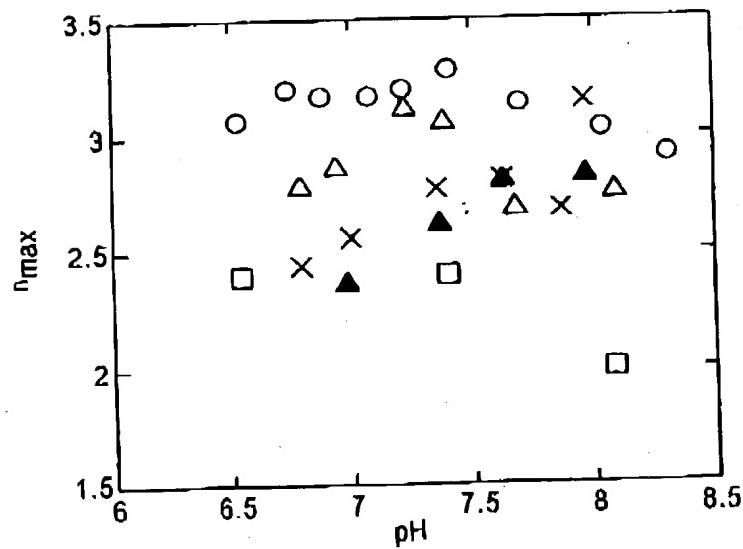
**FIG. 1B**

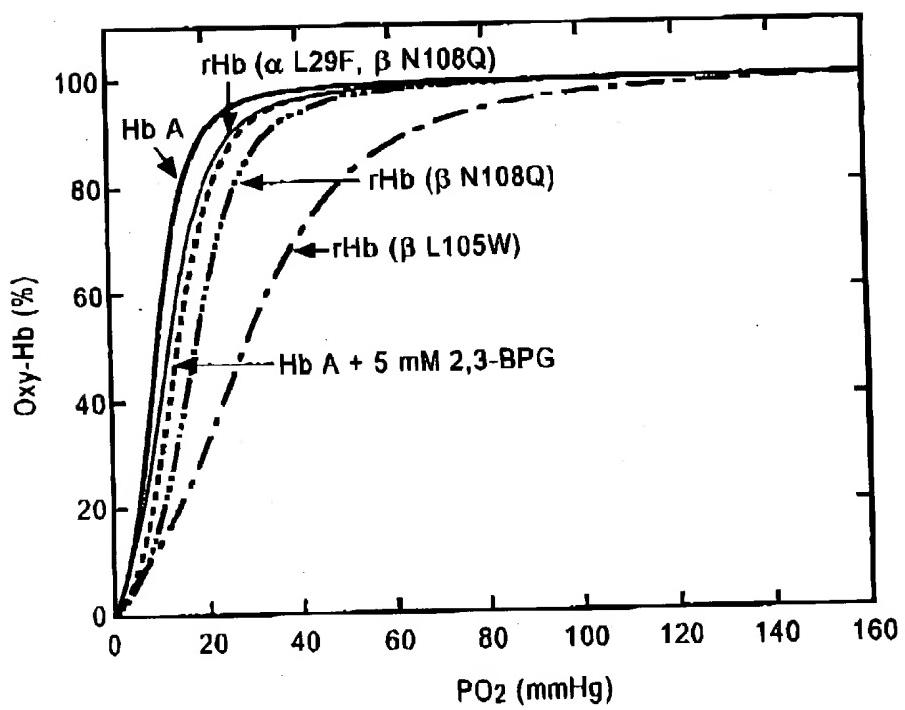


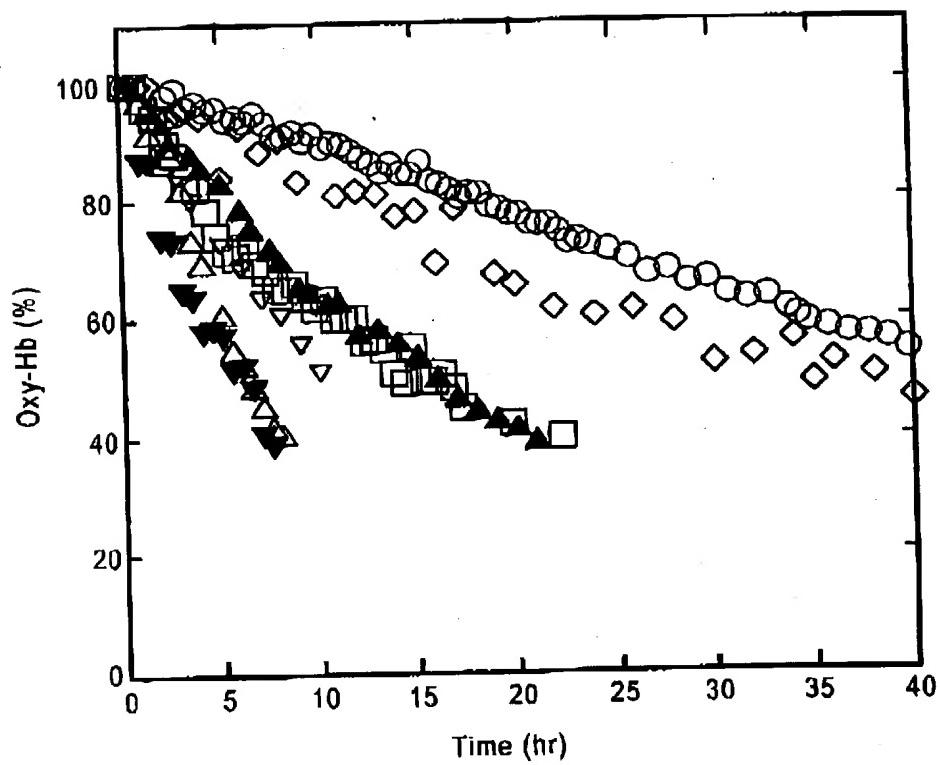
**FIG. 2A**

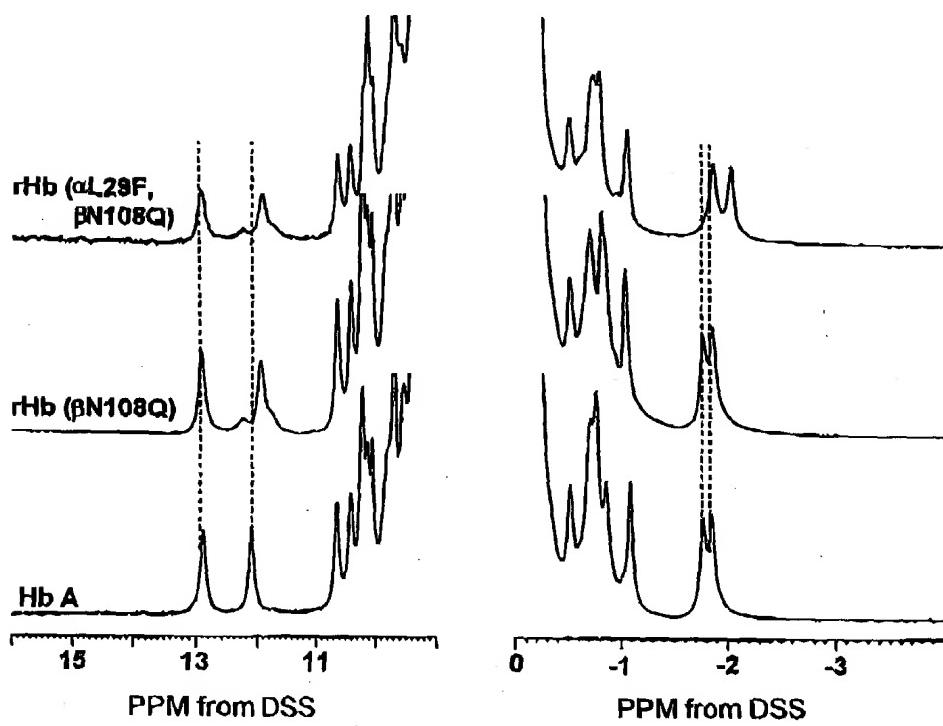


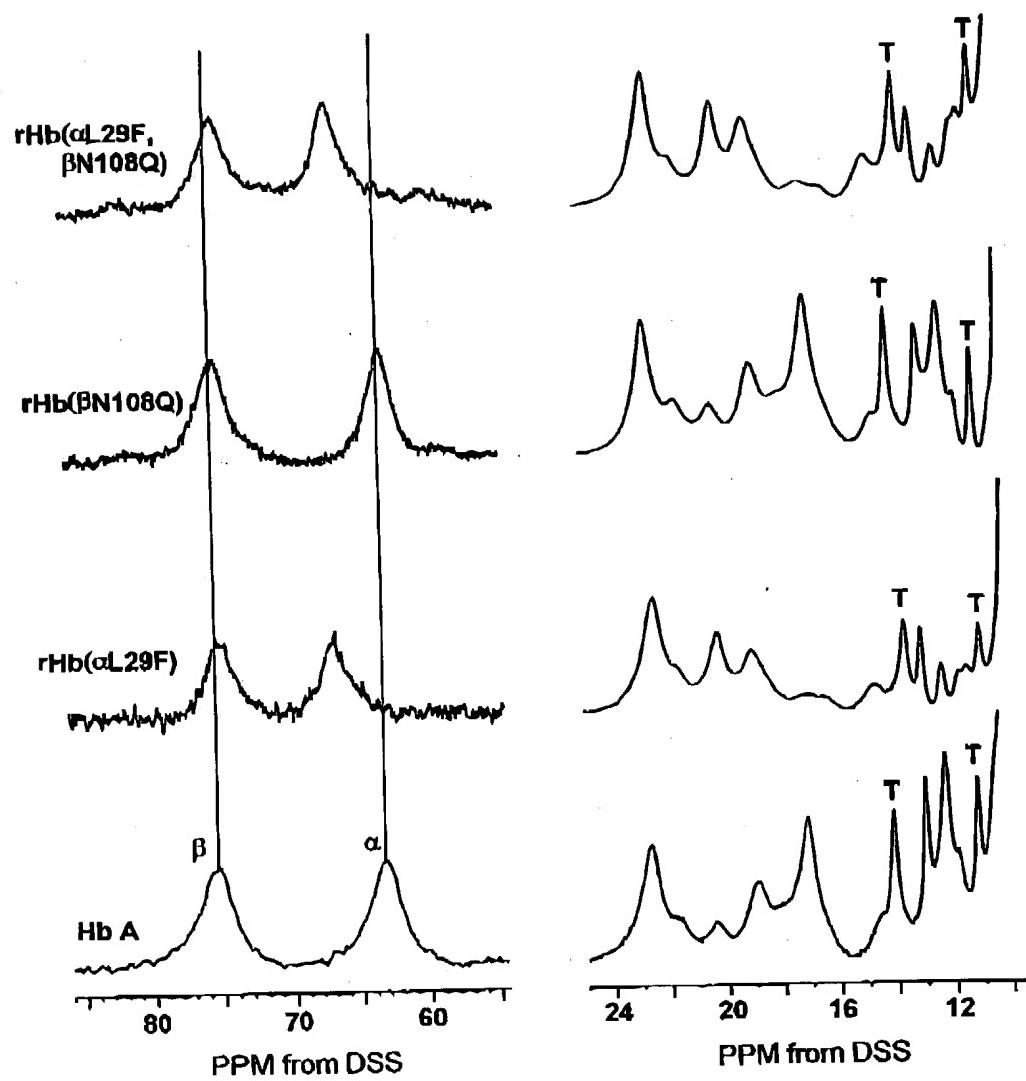
**FIG. 2B**

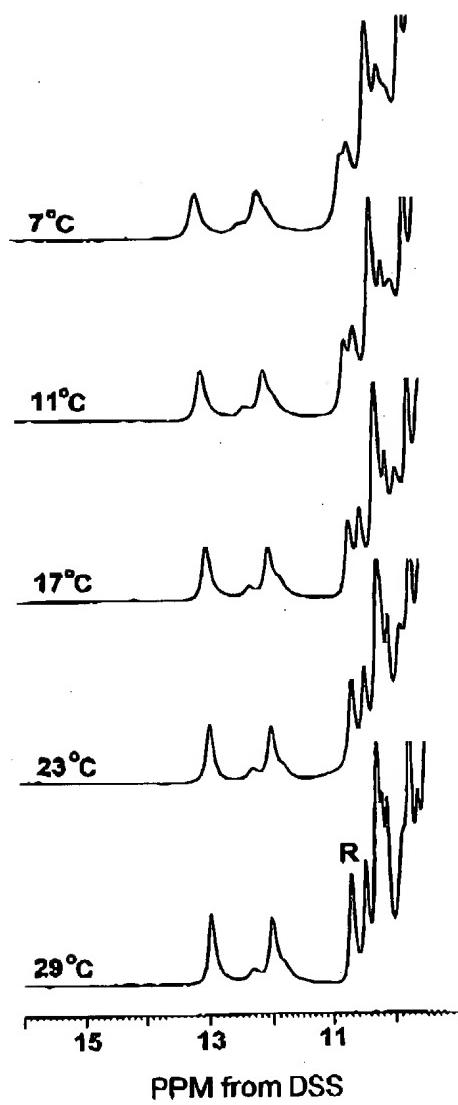
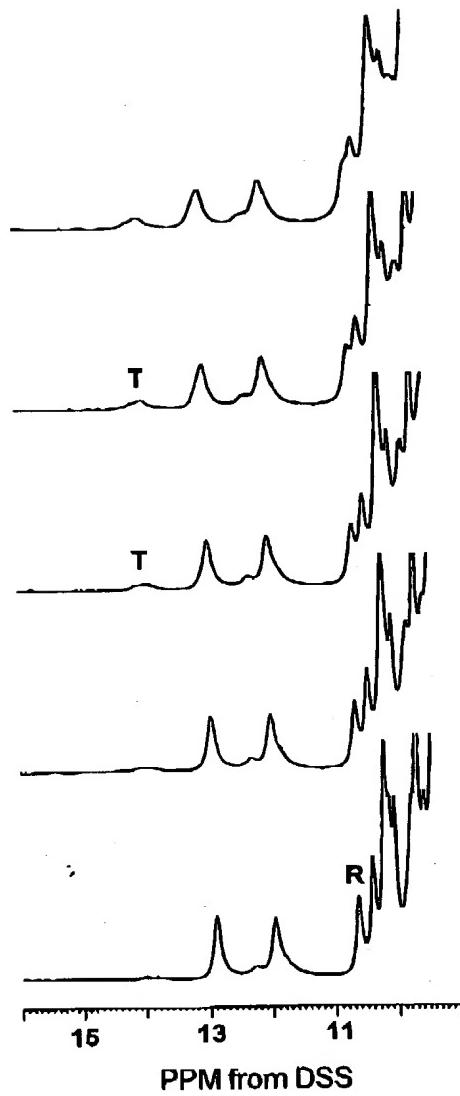
**FIG. 3A****FIG. 3B**

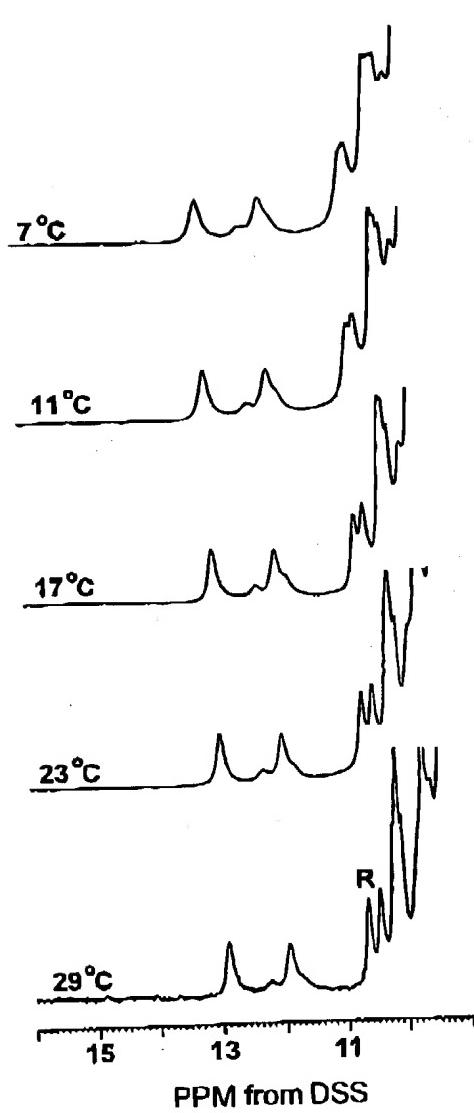
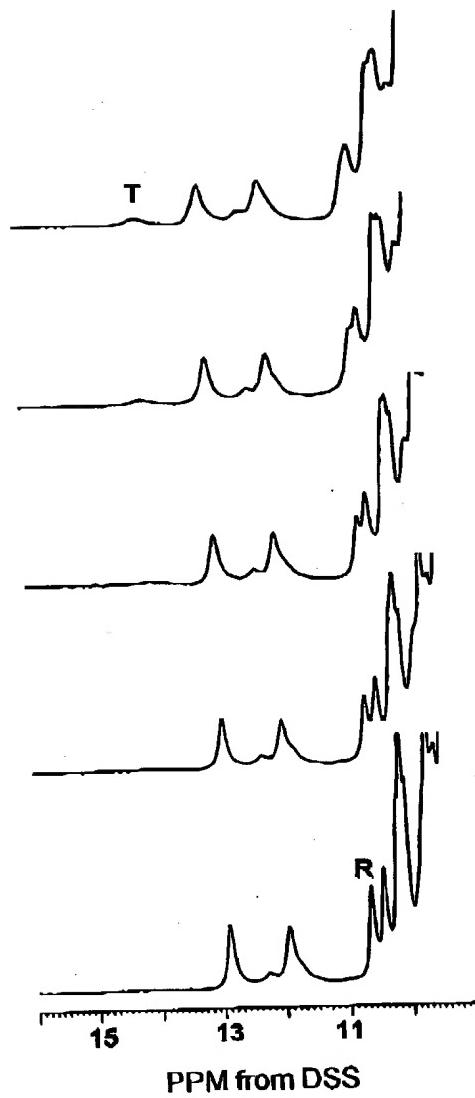
**FIG. 4**

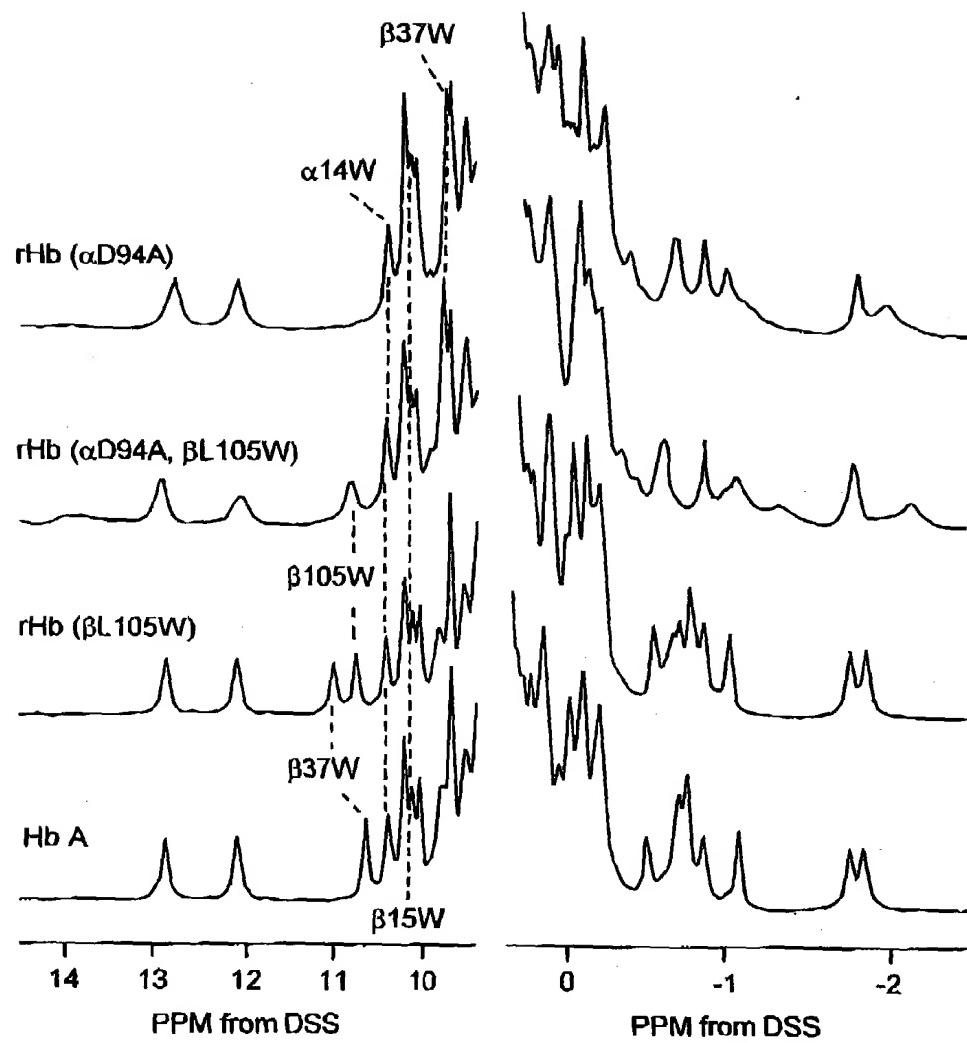
**FIG. 5**

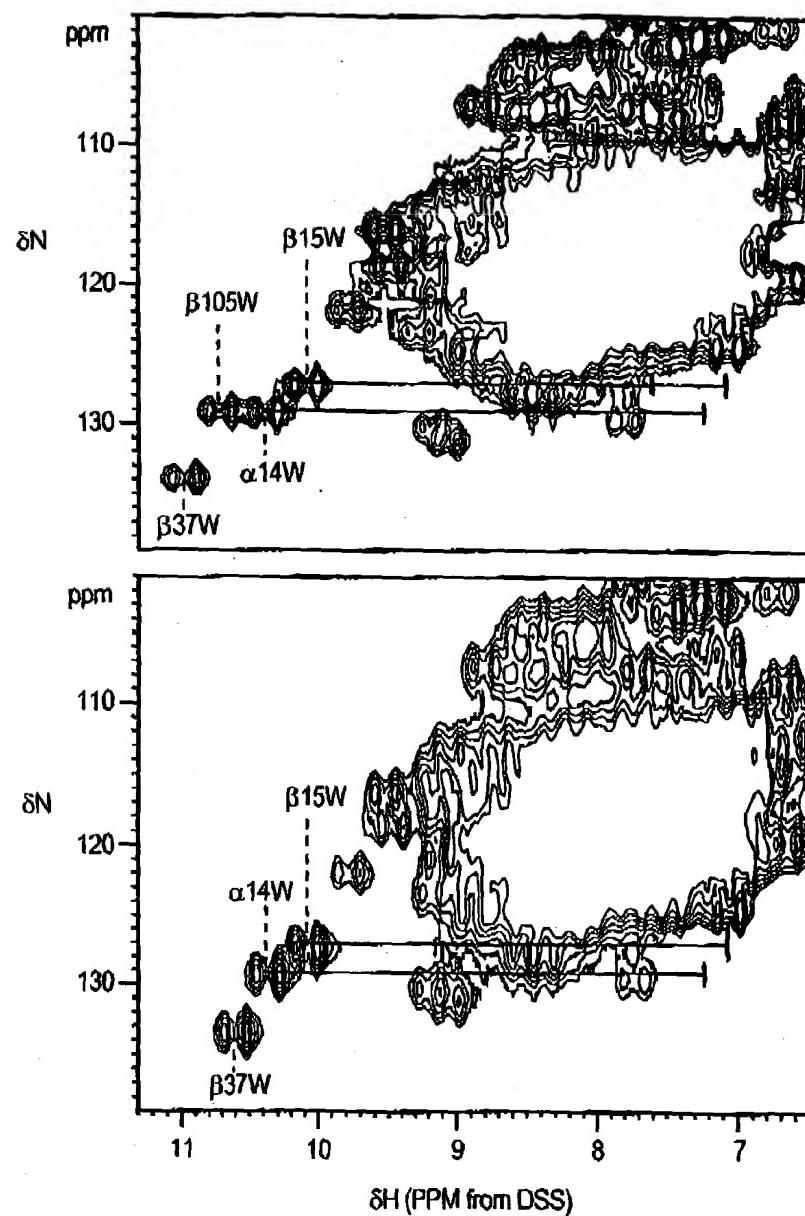
**FIG. 6A****FIG. 6B**

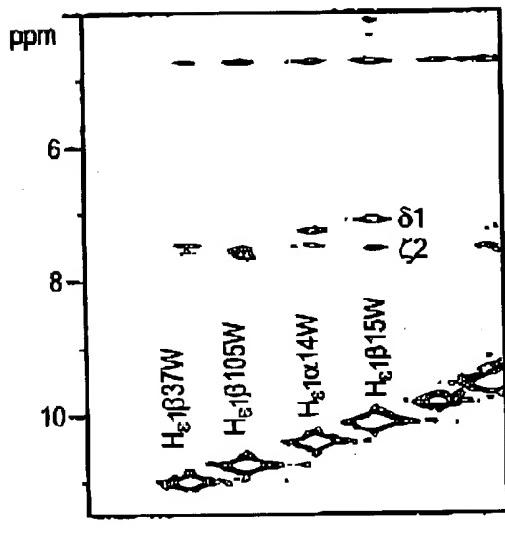
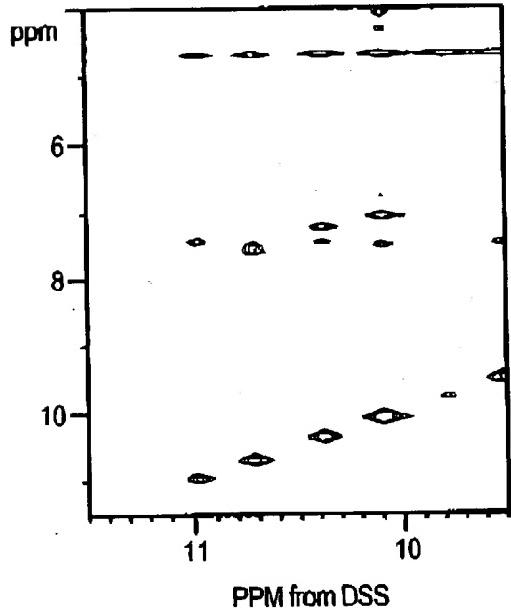
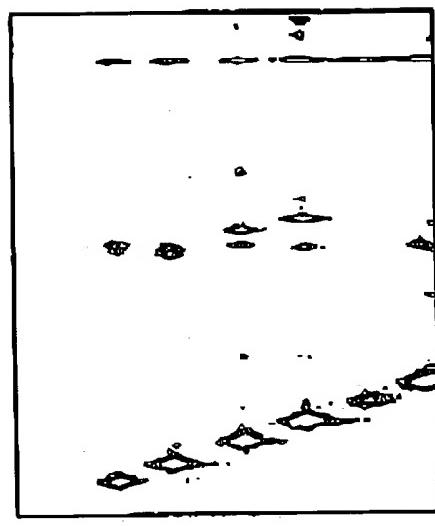
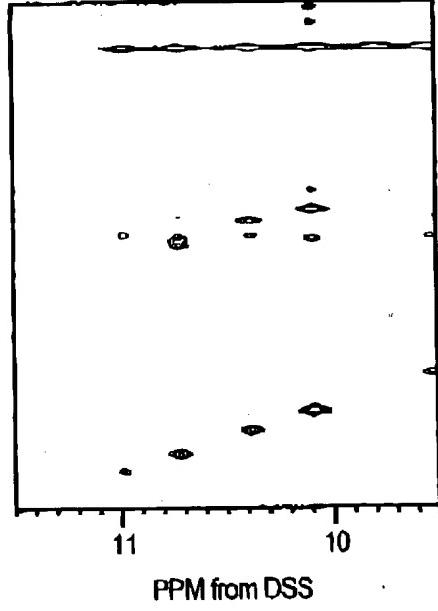
**FIG. 7A****FIG. 7B**

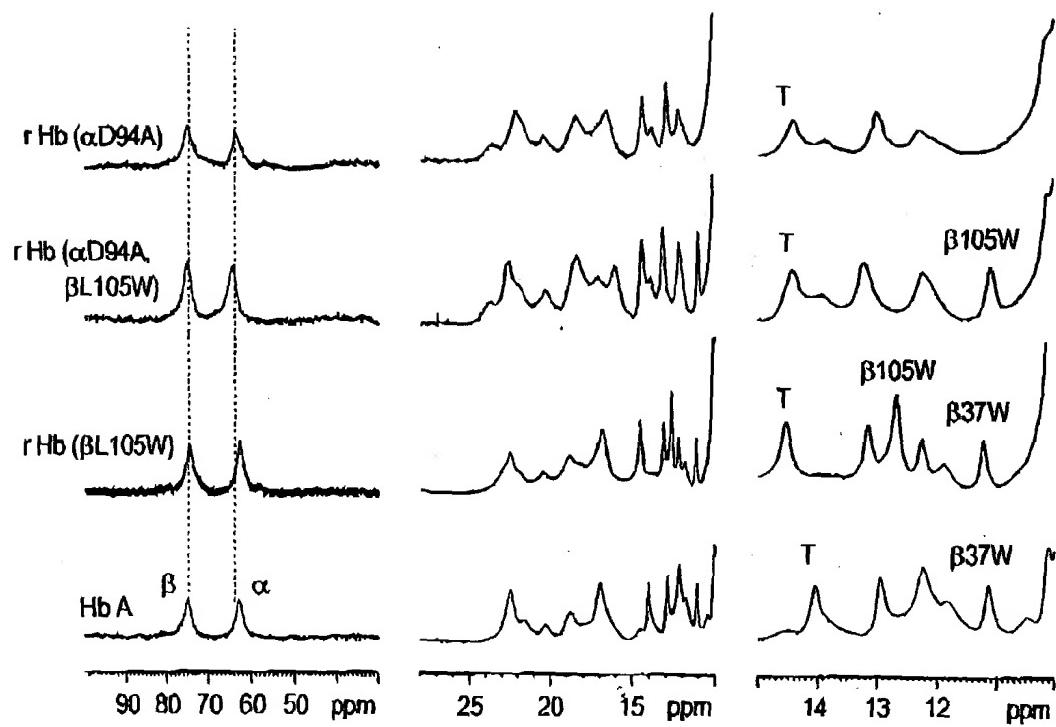
**FIG. 8A****FIG. 8B**

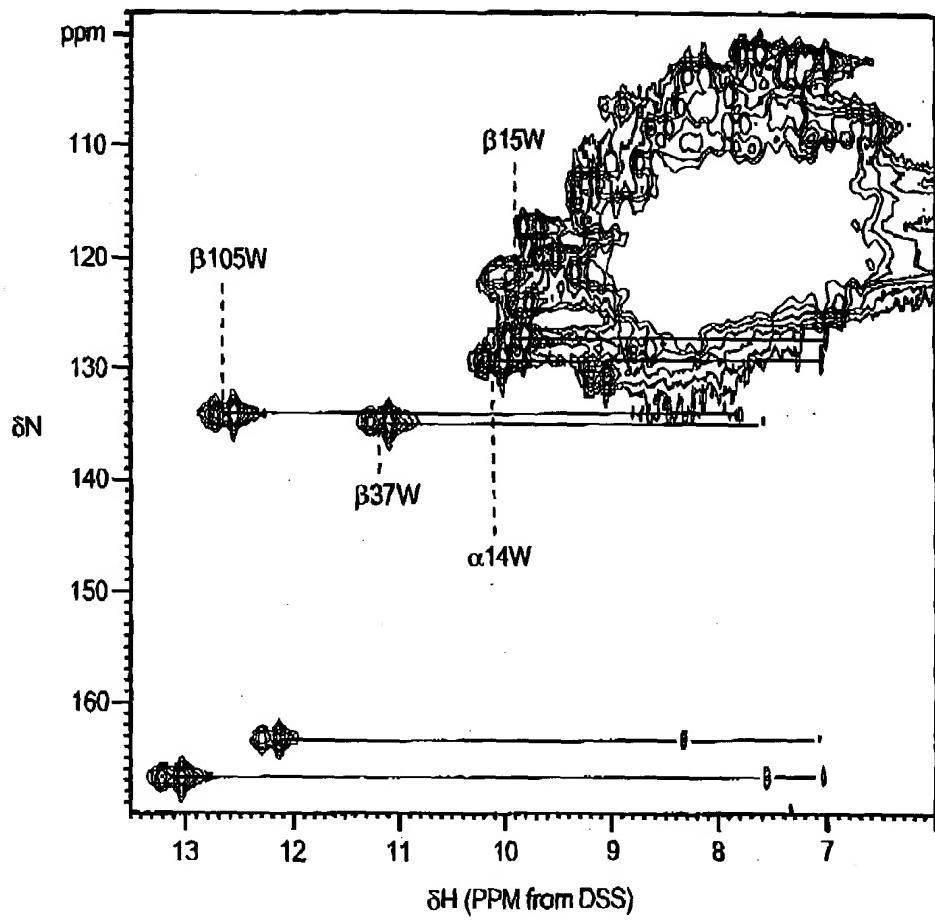
**FIG. 9A****FIG. 9B**

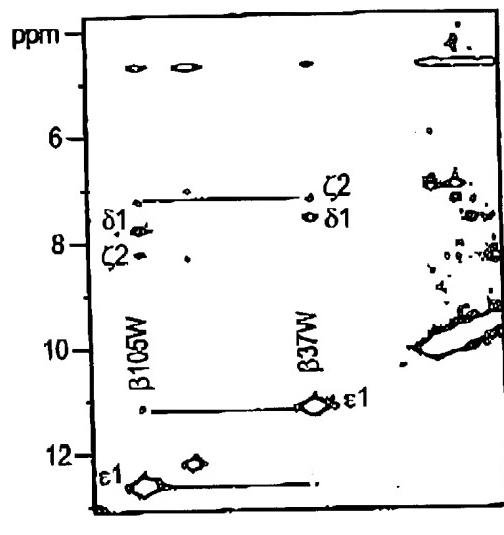
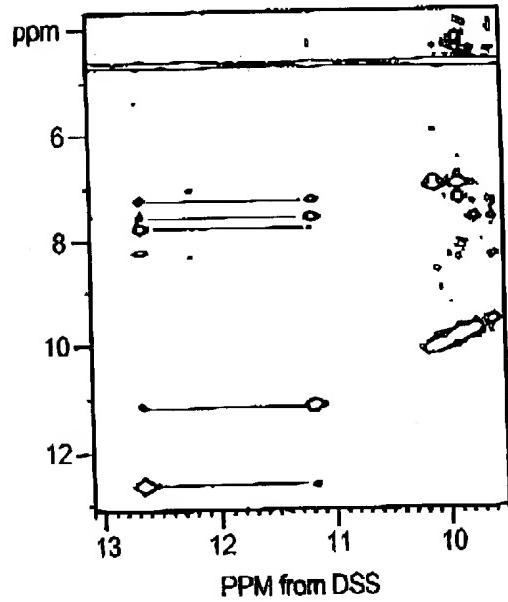
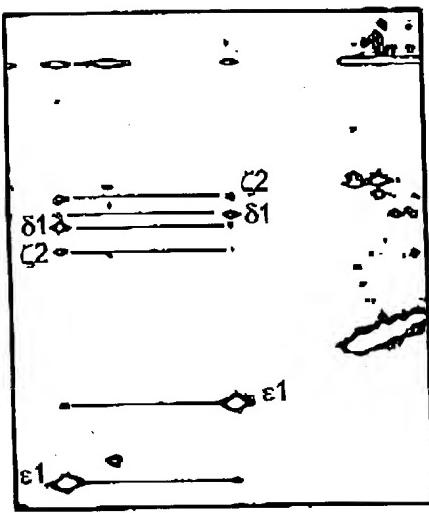
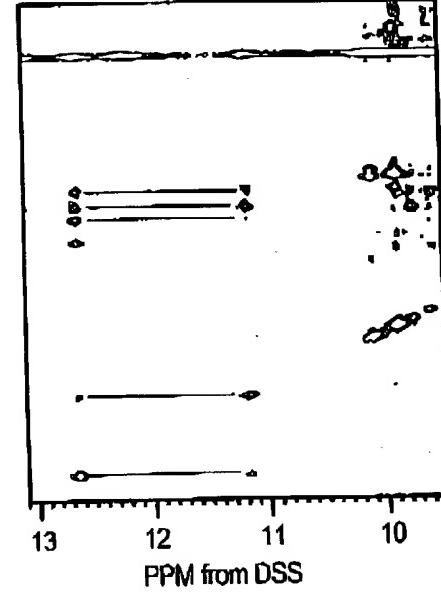
**FIG. 10A****FIG. 10B**

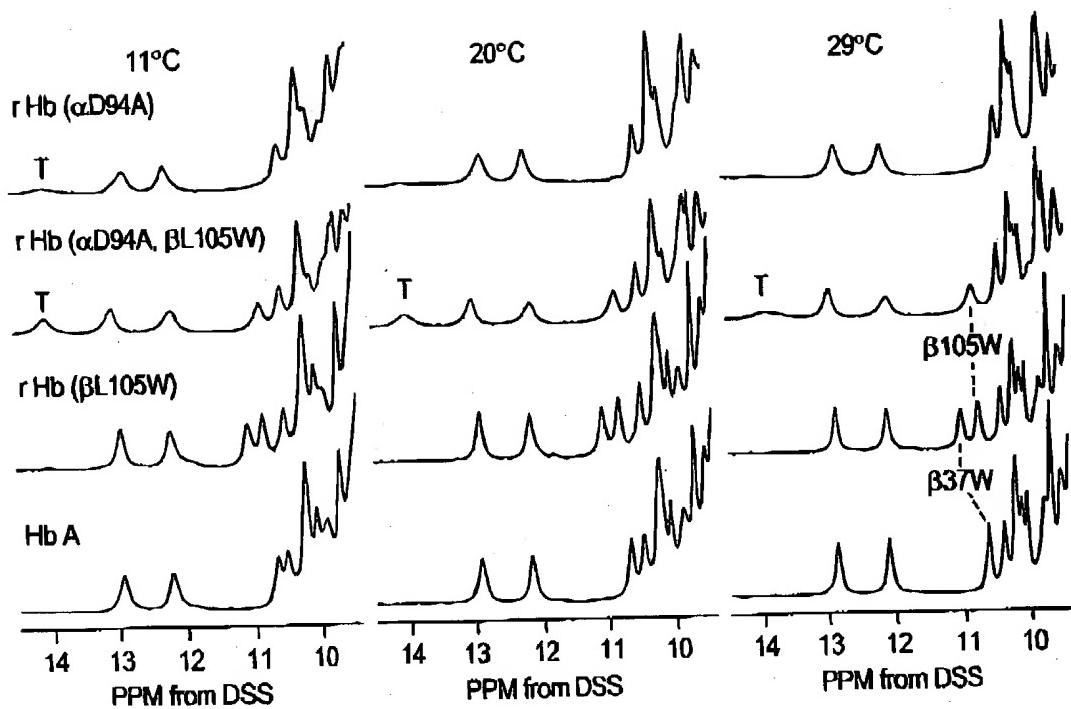
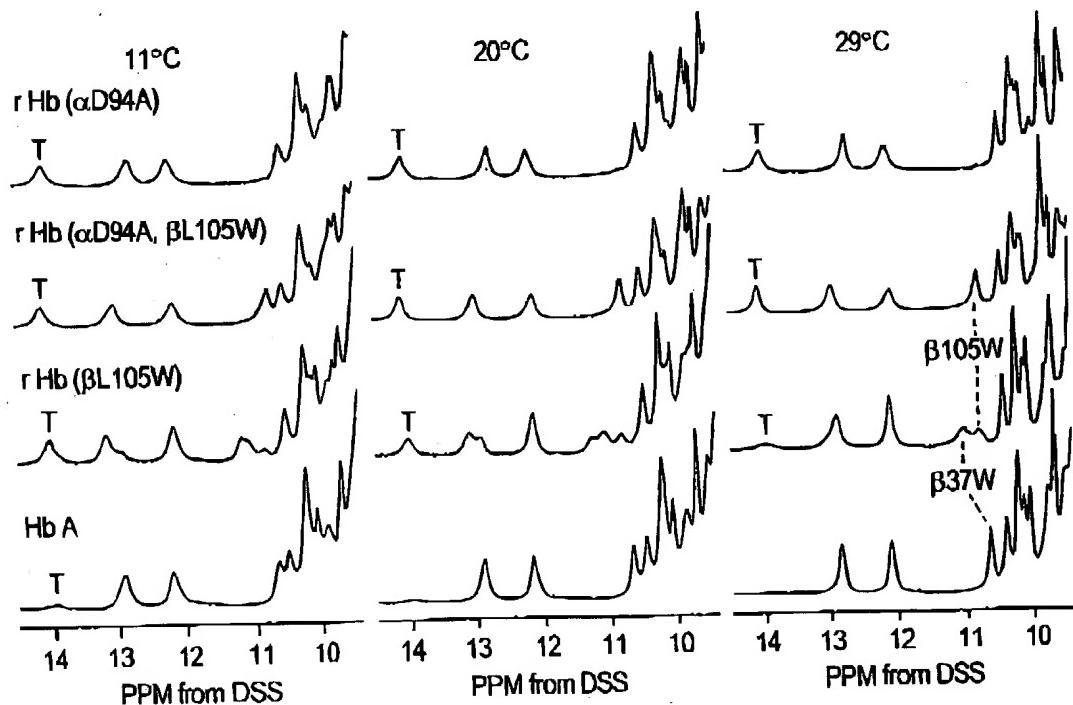
**FIG. 11A****FIG. 11B**

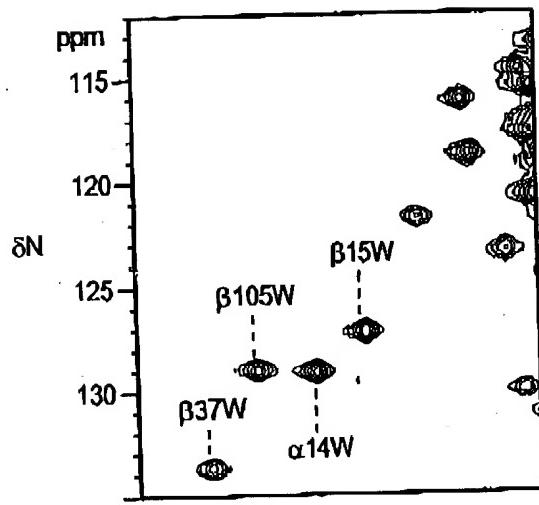
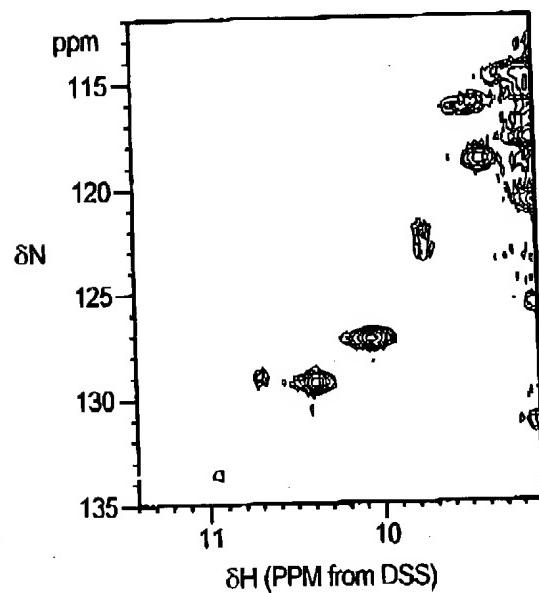
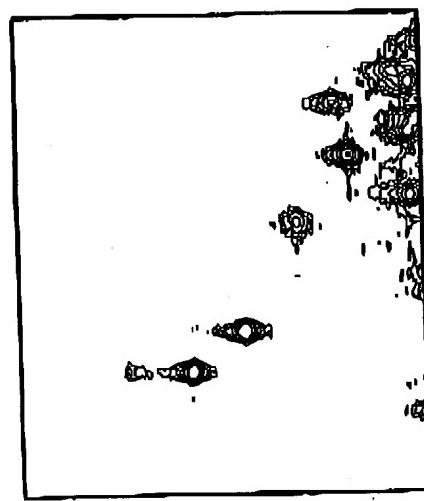
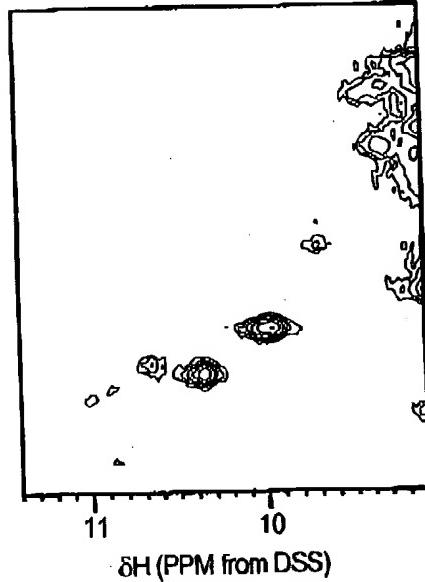
**FIG. 12A****FIG. 12B****FIG. 12C****FIG. 12D**

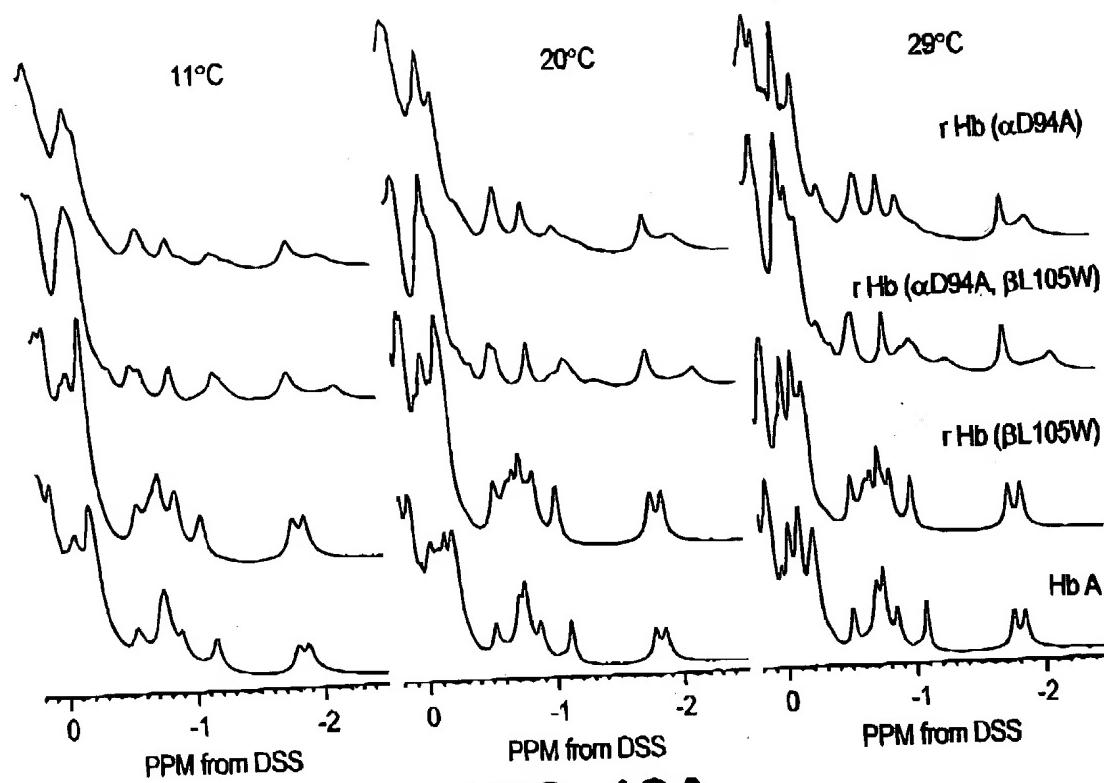
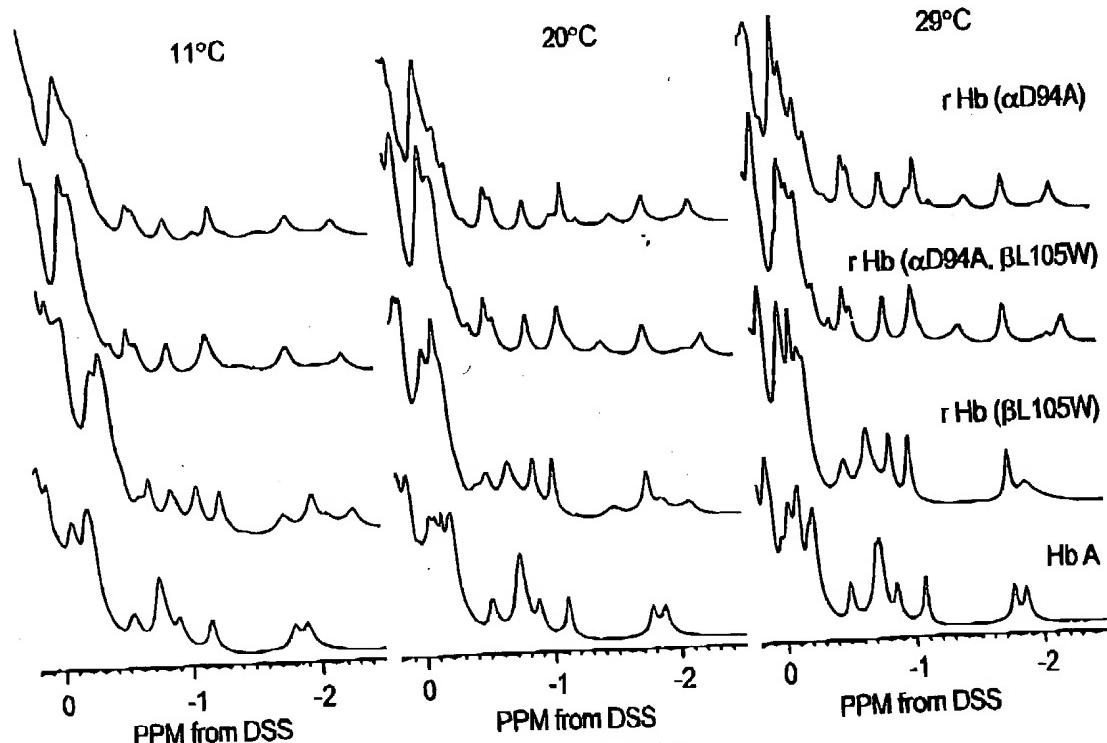
**FIG. 13A****FIG. 13B****FIG. 13C**

**FIG. 14**

**FIG. 15A****FIG. 15B****FIG. 15C****FIG. 15D**

**FIG. 16A****FIG. 16B**

**FIG. 17A****FIG. 17B****FIG. 17C****FIG. 17D**

**FIG. 18A****FIG. 18B**